

IN THE SPECIFICATION

Paragraph at page 7, line 3.

Referring to FIG. 4, a wafer grinder of the present invention includes a rotary worktable 1, an air pressure ~~spindle~~ protection bearing 2, a housing 3 and an adjustment module 4. The rotary worktable 1 includes a spindle 16 positioned at a center of the air pressure ~~spindle~~ protection bearing 2 and a housing 3. The rotary worktable 1 includes a rotary worktable body 19, which has a vacuum nozzle 17 and a pump hose 18. The adjustment module 4 is positioned at perimeter of the air pressure ~~spindle~~ protection bearing 2 and the housing 3 and is equally separated by 120 degrees, as shown in FIG. 6. The rotary worktable 1 includes a vacuum disk 11 made of porous material 15. As shown in FIG. 4, a support plate 12 is defined below the vacuum disk 11. Further referring to FIG. 7, an adjusting screw 121 is provided in the support plate 12 so as to adjust the vacuum disk 11 to hold a wafer of 4 inches, 6 inches or 8 inches. The rotary worktable 1 also includes a coupling 13 made of rubber. The coupling 13 connects with a timing plate belt pulley 14, so motor power is delivered by the timing plate belt pulley 14. The air pressure ~~spindle~~ protection bearing 2 includes an air inlet 21 and an air outlet 22, as shown in FIG. 5. An air inlet hose 311 and an air outlet hose 321 are used to deliver static pressure air to the air pressure ~~spindle~~ protection bearing 2. As shown in FIG. 4, the adjustment module 4 includes a piezoelectric actuator 41 to adjust a tilt angle of the rotary worktable 1. A pre-compression bolt 42, a hexagonal socket screw 43, a disc spring 44 and a locking screw 45 generate a pre-compressive force on the piezoelectric actuator 41. The result is an improved rigidity of the rotary worktable 1. A displacement meter is positioned within the adjustment module 4 so as to measure the displacement of the rotary worktable 1. The displacement meter and the piezoelectric actuator 41 are placed in the same geometrical position. FIG. 8 illustrates a relationship between the displacement of the piezoelectric actuator 41 and corresponding input signal. Most of the relationship is linear. An auxiliary groove 33 is integrally formed with a

holding body 34 to facilitate machining the airflow hose (the air inlet hose 311 and the air outlet hose 321).

Paragraph at page 9, line 3.

The description of the present invention is as follows. The holding body 34 includes the auxiliary groove 33 to facilitate drilling of the airflow grooves. The base structure 50 of the wafer grinder is usually a conventional civil structure for setting up a machine to ensure stability. The wafer holding sub-module is provided on the worktable body 19 and also includes the vacuum nozzle 17 and the pump hose 18 so that a wafer is held steadily by a vacuum. In general, the spindle 16 is connected to the worktable body 19 to rotate the worktable body 19 so that it is more convenient for the configuration of all components. The rotary worktable module further includes an adjustment sub-module positioned within the worktable body 19. The adjustment sub-module includes the adjusting screw 121 to block longitudinally the vacuum nozzle 17 to adjust to wafers of different sizes. To make measurements accurate, the piezoelectric actuator 41 and the displacement meter are in the same geometrical position. To make displacement uniform, three pairs of piezoelectric actuator 41 and displacement meter are positioned at the bottom of the worktable body 19 by the same separation to adjust a tilt angle of the worktable body 19. To make movement accurate, the spindle 16 is driven by a flexible belt-like structure to prevent shock from being transmitted to the spindle 16. To make design of the grinder easy, the spindle 16 further includes the coupling 13 and the timing plate belt pulley 14. The coupling 13 connects with a timing plate belt pulley 14, so motor power is delivered by the timing plate belt pulley 14. To keep rigidity of the wafer grinder, the disc spring 44 generates a pre-compressive force on the piezoelectric actuator 41.

Paragraph at page 10, line 8.

1. The present invention provides an air pressure worktable that can adjust a machining angle with greater precision. In particular, the spindle 16 is subjected to a lateral cutting force so that cutting precision and lifetime of grinder can be extended. The air pressure spindle protection bearing 2 helps to rotate the rotary worktable 1 with precision. The air pressure spindle protection bearing 2 experiences the displacement of the piezoelectric actuator 41 and generates the tilt angle.